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Conjectures about Local Irregularity of Graphs and 2-Multigraphs

We say that graph is *locally irregular* if adjacent vertices have different degrees. After short introduction about the well known 1-2-3 Conjecture [2] we discuss some results concerning the Local Irregularity Conjecture [1] and a new version of this conjecture proposed by Sedlar and Škrekovski in [3]. Next we present the Local Irregularity Conjecture for 2-*multigraphs*, which are multigraphs obtained from graphs by doubling each edge, and some results supporting this conjecture.

References

[1] O. Baudon, J. Bensmail, J. Przybyło, M. Woźniak, *On Decomposing Regular Graphs into Locally Irregular Subgraphs*, European Journal of Combinatorics 49, 2015, pp. 90–104.

[2] B. Seamone, *The 1-2-3 Conjecture and Related Problems: a Survey*, http://arxiv.org/abs/1211.5122, 2012.

[3] J. Sedlar, R. Škrekovski, *Remarks on the Local Irregularity Conjecture*, http://arxiv.org/pdf/2111.08111, 2021.